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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,351	09/30/2003	Sean J. Hart	NC 84,517	8470
26384 7590 07/15/2008 NAVAL RESEARCH LABORATORY ASSOCIATE COUNSEL (PATENTS) CODE 1008.2 4555 OVERLOOK AVENUE, S.W. WASHINGTON, DC 20375-5320				
EXAMINER				
DRODGE, JOSEPH W				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
07/15/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/673,351

Applicant(s)

HART ET AL.

Examiner

Joseph W. Drodge

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-13, 15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-13, 15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11-13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al patent 5,495,105 in view of Daprich patent 6,585,939 (applied against the claims in the Final Rejection of 22 March 2006).

Nishimura teach a microfabricated/miniaturized device for performing biological testing of samples containing DNA particle material (column 1, lines

15-27 and column 2, lines 28-38) , by manipulating flow of the particles by directing light travel from laser sources 5 and lense input parts 6 (column 1, lines 52-62) in an opposite direction to the flow of fluid through a fluid pathway (figure 2 and column 2, lines 1-10). The fluid pathways of Nishimura are also miniaturized to the approximate diameters of the DNA particles (column 47-51). The body containing the fluid pathways of the Nishimura device is comprised of glass or plastic (column 2, lines 39-40 and column 5, lines 55-57). ***Nishimura also disclose a window 22 abutting a light input part (thin mid-section of flow body 21/23 for directing input light from light sources 26 and 28 through the flowing sample towards photodetector 31, the window comprised of quart, i.e silica. See figure 3 and column 4, lines 20-26.*** Different one of the lens system 6 of the Nishimura system and the surface of the flow channel facing the lens system can variously be considered components of light inputting part and light manipulating part.

The claims all differ in requiring the flow-path containing body to comprise poly-dimethylsiloxane (PDMS). However, Dapprich teaches a body for performing assays of DNA advantageously employing PDMS instead of materials limited to glass and plastic (column 3, lines 14-51 and column 4, lines 1-21). Also Dapprich discloses the flow-path containing body to contain a combination or layers of PDMS and other materials such as silicon, glass [as required for claim 15] (column 10, lines 5-15). An array of advantages of the PDMS material are discussed at column 3, lines 33-42 pertaining to durable construction and biocompatible and optical and chemical properties of the material. The body includes flow paths of directed fluid flow (column 11, line 15-column 12, line 20) and light input sources including lasers and light input parts including lenses and other light manipulating devices (column 5, lines 17-28 and column 12, line 22-column 13, line 15). It would have been obvious to one of ordinary skill in the art to have utilized the PDMS material of Dapprich in the device of Nishimura, because of the biocompatible, chemical and optical properties of the material as well as it's cheap and durable construction.

The claims all differ from Nishimura in requiring the body to comprise a 1st PDMS material that has the fluid pathway and the light input part to comprise a second material. However, Dapprich teaches light input parts to comprise varied materials, especially PDMS, for their superior optical properties (see column 12, lines 31-43 concerning lens components of epoxy or other resin materials and see column 8, lines 30-35 concerning dye materials applied to selected surfaces for their optical properties). It would have been obvious to one of ordinary skill in the art to have utilized a different material for the light input part of the body of Nishimura than for the fluid pathway part of the body of Nishimura, as taught by Dapprich because of the optical properties of the different materials pertaining to light absorbing, scattering, focusing and/or polarities.

For claim 15, both Nishimura (column 2, line 40) and Dapprich column 4, line 33) discuss glass components.

For claims 12 and 16, Nishimura also disclose lens-type light manipulating parts 27 and 29.

Applicant's arguments filed on 5/22/2008 have been fully considered but they are not persuasive. It is argued that state of the art processing at the time of the invention did not permit construction of flat-exterior-surfaced pathways such as in figure 2 of Nishimura. Such argument is not understood; no flat-exterior-surfaced pathway is claimed. Nishimura explicitly disclose quartz, light-recieving and directing part forming surface of a flow-channel, i.e. "silica window".

It is argued that neither of the applied references suggests

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at his direct government telephone number of 571-272-1140. The examiner can normally be reached on Monday-Friday from approximately 8:30 AM to 12:30 PM and 2:00 PM to 6:00 PM.

Alternatively, to contact the examiner, send a communication via E-mail communication to the Examiner's Patent Office E-mail address: "Joseph.Drodge@uspto.gov". Such E-mail communication should be in accordance with provisions of MPEP (Manual of Patent Examination Procedures) section 502.03 & related MPEP sections. E-mail communication must begin with a statement authorizing the E-mail communication and acknowledging that such communication is not secure and will be made of record, under Patent Internet Usage Policy Article 5. A suggested format for such authorization is as follows: "Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file.

Additionally, the examiner's supervisor, David Roy Sample, of Technology Center Unit 1797, can be reached at 571-272-1376.

The formal facsimile phone number, for official, formal communications, for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more

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information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

7/13/2008

/Joseph W. Drodge/

Primary Examiner, Art Unit 1797